

# Iowa CONSERVATIONIST

OCTOBER 1985

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# Iowa CONSERVATIONIST

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## CONTENTS

- 2 Hunting Forecast
- 6 Waterfowl Outlook
- 8 Fall Planting
- 10 Conservation Update
  - Donations
  - Conservation —
  - Winners and Losers
  - Calendar of Events
- 13 Warden's Diary
- 13 Classroom Corner
- 14 County Hunting Areas in SW Iowa
- 15 Fuel From Your Forest
- 16 Nature Tale
- 17 Wildflower
- 18 Buttons, Forks, Pin Cushions and Hat Racks
- 20 Spirits, Ghosts and Goblins
- 21 Central Iowa is Bursting With Color
- 22 A Conservation Christmas

FRONT COVER: Photo by Ron Johnson

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# 1985 HUNTING FORECAST

"Things Could Only Get Better"

By Terry W. Little

*Terry Little is the wildlife research supervisor for the commission. He holds a Ph.D. from the University of Minnesota. He has been with the commission since 1975.*

By any standard, the 1984 hunting season for most game animals was poor, perhaps the poorest since the Conservation Commission began keeping records. An extremely harsh winter in 1983-84, coupled with four straight wet, cool nesting seasons, reduced most small game populations to the lowest levels in memory by the fall of 1985. During the same years drought on the Canadian prairies dried up the potholes on which most of our ducks depend for breeding habitat, and reduced fall waterfowl migrations to near all-time lows. The commission's poor forecasts for the 1984 seasons must have depressed many hunters, because just 224,951 hunting licenses were sold, the fewest in decades. Low game populations, plus fewer hunters, meant very low harvests of most species (see table). The deer herd,

which is relatively unaffected by weather, was the only bright spot; deer populations and deer hunters have been increasing steadily for over a decade, with both setting records in 1984.

Mother Nature is fickle, and seldom blesses Iowa with consistent weather. Weather patterns reversed dramatically in 1985, the winter was mild and without a blizzard, while the critical nesting period from April through June was one of the driest on record. Warm, dry springs usually mean excellent production of all small game, and good survival of young animals into the fall. The drought in Canada also ended; a normal snowpack led to better water conditions and increased breeding habitat for most ducks.

With this in mind, I polled the Conservation Commission's wildlife research biologists charged with making hunting season recommendations for their predictions for the upcoming hunting seasons. Their generally optimistic forecasts follow. For more detailed information, contact them at the addresses indicated.



Jerry Leonard



## UPLAND GAME

The ringnecked pheasant is Iowa's most important game animal, pursued by 80 percent of resident small game hunters, and with annual harvests of 1-1.5 million birds in most years. Pheasants are also the major attraction for the 25,000 or so nonresident hunters that invade the state each fall leaving cash in the hands of Iowa's rural merchants when they leave.

The Commission's roadside surveys, conducted the first two weeks in August, indicate pheasant numbers could be twice as abundant as in 1984, according to Ron Munkel, wildlife technician at Red Haw State Park, Chariton (515-774-2958). "The roadside index is the best predictor of fall harvests that we have available," says Munkel, "so hunters should find many more birds than last

year. The index is up from the lowest year on record, however, and is only about at the average level observed in the past 10 years. A banner year is probably too much to ask after the bust of last year; it will take a year or two to recover to excellent population levels." The southern half and a small area in the northeast quarter of Iowa seem to have the most pheasants, based on the roadside surveys (see map).

The situation for bobwhite quail, Hungarian partridge and cottontail rabbits is similar. Roadside surveys indicate increases of 119 percent for quail, 104 percent for "huns," and 36 percent for cottontails, with no change seen in the number of jack rabbits. "The state's southern two tiers of counties will provide the best areas for quail and rabbits, but brushy areas along rivers and

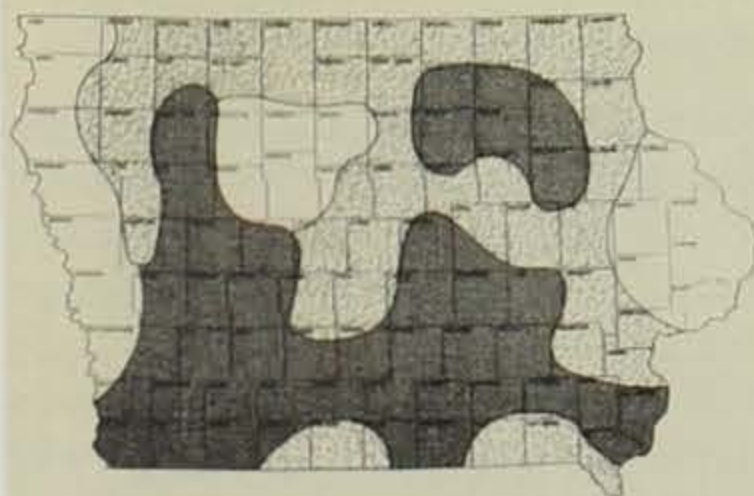
streams, fencerows and idle areas in the central and northern portions of Iowa will provide occasional good hunting also," said Munkel. Three counties in northeast Iowa had surprisingly good quail counts this year, and should provide a bonus for hunters in this area (see map).

Hunting for huns is restricted to north of I-80, with the best population west of I-35, roughly the northwest quarter of the state (see map). Hun populations are increasing everywhere, however, and

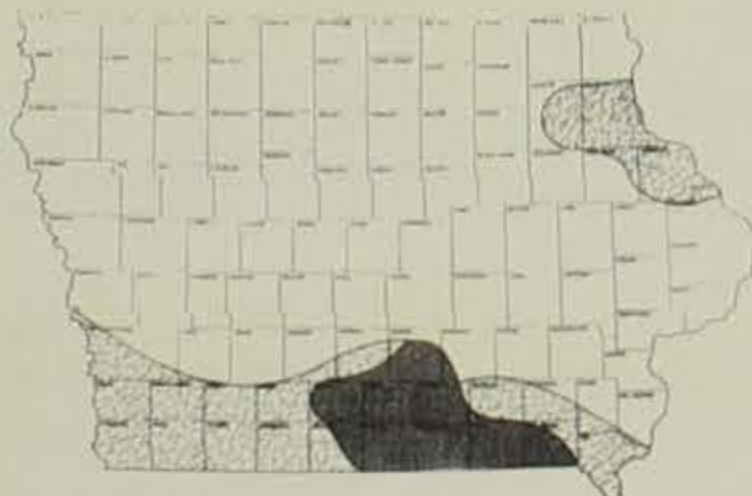


## 1985 UPLAND GAME BIRD DISTRIBUTION

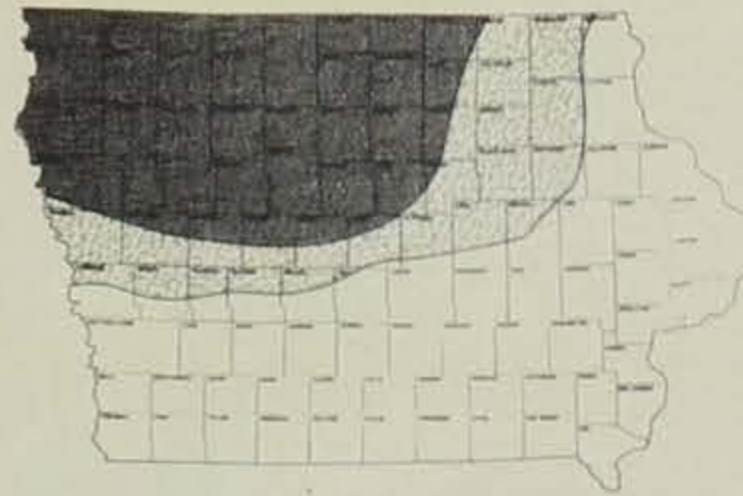
■ Good    ▨ Fair    □ Poor



Pheasant



Quail



Gray Partridge



*continued from page 3*

can be found throughout the area open to hunting. Hunters willing to travel and cover ground will find plenty of action and little competition, since partridge are the least pursued upland game bird.

### FOREST GAME

Fall turkey hunting has not been extremely popular with Iowa hunters. Just 3,500 shotgun licenses are available in three zones in southern, western and northeastern Iowa, but nearly 700 licenses remained unsold last year. "Turkeys came through last winter in excellent condition," according to Greg Hanson, forest wildlife biologist, (also at Red Haw State Park), "and had an excellent hatch, so plenty of the young, inexperienced birds which are most vulnerable to hunters will be available." Shotgun hunter's success rates should be in the 40-50 percent range, while archery success rates will be much lower (5-10 percent). "Hunters should seek private land on which to hunt," said Hanson, "since crowded public hunting areas often have success rates up to 15 percent lower than private land." Shotgun permits were issued during a mid-summer application period; archers may buy licenses from the commission's Des Moines office until the end of the season.

Squirrels are one of our most underutilized resources, with relatively light hunting pressure exerted in all squirrel timbers. The smaller, more active gray squirrels can be found in larger timber tracts in the eastern half of the state. The more common fox squirrel is found throughout Iowa wherever a few trees are found. Squirrels also came through the winter in good shape and hunters should find plenty of bushytails this fall.

Most squirrels are hunted, incidentally, in conjunction with other upland

game hunting trips. "Hunters seeking to sharpen their shooting eye and get an early start on hunting should not overlook the opportunity provided by the September and October squirrel season, when most other hunting seasons are still closed," said Hanson.

Ruffed grouse and woodcock are lightly hunted in Iowa and most are confined to the northeast corner of the state. "Grouse populations seem to be on the upswing from a low two years ago," said Hanson, "with brood sightings more common this summer. Populations should be up, but not to peak levels."

The trend in woodcock populations has been down in recent years. Breeding habitat loss in the Great Lakes states and Canada, and poor weather during the nesting season, seem to be the culprits. Iowa hunters could still have good success if weather conditions and the timing of the migration are right.

Hunters seeking to exercise their bird dogs and limber up their shooting eye prior to the pheasant opener should not pass up late October woodcock gunning. According to Hanson, "Woodcock mi-



Lee Gladfelter



Jerry Leonard

grations tend to peak around October 20, and surprisingly good shooting can be had in most of the river corridors, even in central and western Iowa. The Des Moines and Missouri Rivers can be excellent hunting areas. Willow thickets on moist soil provide the best woodcock habitat at this time."

The outlook for deer hunting this fall is excellent. A record harvest was set in 1984, and population trends indicate the herd has increased slightly since last year. To help stabilize the deer herd, any-sex license quotas have been increased by 17 percent. A total of 24,700 any-sex permits will be issued to paid shotgun and muzzleloader hunters. All second season landowner-tenant shotgun licenses will be valid for any deer. Twice as many any-sex licenses will be issued during the second shotgun season compared to the first, to spread hunting pressure and even out success rates between seasons.

Deer have become so numerous in parts of Des Moines and Lee Counties in southeast Iowa that a special late season will be held to reduce this herd to manageable levels. Four thousand supplemental transportation tags will be issued on a first-come-first-serve for a zone bounded by U.S. Highways 34 and 218, State Highway 2, and the Illinois state line. These extra tags will allow hunters to take one deer of either sex from Dec. 21 through Jan. 5, 1986, even though they may have bagged a deer during the regular season. Anyone having a paid regular shotgun license, or a landowner-tenant license good in this zone, may apply by calling the Conservation Commission's Des Moines office from Nov. 21-27.

"Many trophy bucks will be taken this fall," according to Lee Gladfelter, deer biologist (Wildlife Research Station, Boone, 515-432-2823). "Iowa deer are blessed with a nutritious food source and limited winter stress which allows them to produce good antler growth at an early age. Trophy bucks can be hunted anywhere in the state where sufficient deer habitat is available."

### FURBEARERS

Fur hunters and trappers will see little change in the outlook for most furbearers this fall, according to Ron Andrews furbearer biologist (Clear Lake Research Station, 1203 N Shore Drive, Clear Lake 515-357-3517). "If drought conditions continue in northern Iowa, they will likely reduce the take of aquatic furbearers, especially muskrats, and to a lesser degree mink and beaver," said Andrews.



Raccoon and coyote numbers appear to be plentiful for both hunters and trappers to pursue. Foxes also should be up somewhat; last year's rather mild and open winter reduced the take by hunters and should mean more fox will be available this year.

"Although predicting fur prices is always a gamble," said Andrews, "I foresee few increases from the 1984-85 season. All in all, ample supplies of all furbearers, except perhaps muskrats, should provide plenty of opportunities for the fur hunters and trappers to pursue their quarry."

Trappers are reminded that this year a \$15.50 fur harvesters license (\$2.50 for those under 16) and habitat stamp are

required to take furbearers. Coyote and groundhog may be hunted with either a hunting or fur harvester license and habitat stamp.

## WATERFOWL

Jim Hansen, waterfowl biologist (also at Clear Lake) reports that the outlook for waterfowl in 1985 is the only negative picture in an otherwise rosy forecast. Drought conditions which persisted in southern Canada's prairie pothole region from 1980 through 1984, resulted in poor duck production and declining populations of most ducks, especially the mallards and pintails prized by mid-western duck hunters. "Water conditions were better this spring than last year," said Hansen, "but the number of breeding ducks available to take advantage of this nesting habitat was too low to significantly increase duck populations. As a result, the predicted fall flight forecast for 1985 is the lowest since records have been available." (See page 6 for more details.)

To compensate, seasons have been shortened and bag limits reduced to return more ducks north to the prairies in 1986. Iowa's duck season has been reduced to 40 days and point values for most ducks have been increased (see page 6.) A three-day season from Sept. 21-23 allowed hunters to take advantage of early migrating blue-winged teal and wood ducks, which are still relatively abundant.

The snow and Canada goose populations, which migrate through Iowa, nest near Hudson's Bay in northern Canada, and were less affected by this decade's drought on the prairies. "Nesting success of both snows and Canadas was average or better in 1985, and a fall flight similar or slightly above last year is predicted for both species," according to Hansen.

Hunters are reminded that steel shot is required for nearly all waterfowl hunting in Iowa for the first time this year. Persons hunting waterfowl on any public hunting area, regardless of how far they are from water, or within 150 yards of the waterline on any privately owned area, must use steel shot only. (They may not even have lead shot in their possession). The only exceptions are temporary sheet water, farm ponds less than two acres and streams less than 25 yards in average width in the area of the hunting. Pheasant hunters using public hunting areas should take only steel shot with them if they think they might shoot a duck!

Goose hunters in western Iowa should be aware that a special steel shot zone has been designated around Desoto Bend National Wildlife Refuge to protect bald eagles from lead poisoning. Steel shot will be required for all waterfowl hunting in this zone, including field hunting. Check with Desoto NWR for details.

From these forecasts, it is obvious that most Iowa sportsmen can look forward to a better hunting season than in 1984. "Populations of nearly all game species will be more abundant than last year," according to Richard Bishop, superintendent of wildlife, "and should provide opportunities for many days in the field. It may be too soon to expect excellent gunning, but populations seem to be on the right track after several years of continual decline."

Of course, the success of any hunting season is measured by more than just the number of animals bagged. Those hunters who passed up last season because of the poor outlook missed irretrievable opportunities to enjoy days afield with their hunting companions, be they human or dogs. More importantly, they missed the contact with nature that is essential to remind city-bound man that he is only part of a complex world that will not tolerate unending abuse and still produce the quality outdoor experiences that we all cherish. Hopefully, even these casual hunters will find enough encouragement in this year's forecast to renew their relationship with the natural world, upon which we so strongly depend.



Jerry Leonard

## Harvest estimates for game species in 1984-85

Estimates are derived by mailing hunters a post-season survey card that asks which species they hunted and the number of each bagged. Separate surveys are mailed for small game, deer and turkeys.

Species	No. bagged	% change 1983-84	No. hunters	% hunting this species	
				Resident	Nonresident
Pheasant	724,200*	- 30	176,300	71	91
Quail	190,700*	- 29	58,630	23	36
Hungarian partridge	33,300	- 63	21,179	9	10
Ruffed grouse	13,300	+ 125	7,600	3	2
Woodcock	6,000	—	2,000	1	2
Wild turkey	1,200	+ 44	2,981	< 1	0
Ducks	626,900	+ 5	53,200	23	13
Blue-snow geese	31,200	+ 91	22,700	10	5
Canada geese	30,000	+ 40	26,700	12	6
Cottontail rabbit	636,200	- 11	103,000	45	21
Jackrabbit	6,400	- 27	5,500	2	2
Squirrels	529,300*	- 20	86,400	38	7
Rails	3,100	—	1,400	< 1	< 1
Snipe	8,500	—	3,200	1	< 1
Raccoon	295,650	+ 14	26,000	12	2
Fox	22,200	- 62	35,100	16	2
Coyotes	25,268	- 29	33,300	15	3
Deer	39,400+	+ 10	108,300	42	0

\* Record low since records have been kept (1963-64).

+ Record high since the first modern season in 1953.



# The Waterfowl Outlook

By James L. Hansen

The outlook for Iowa waterfowl hunters this fall is a "mixed bag" of good and bad news. Most of the good news concerns goose populations, while for ducks the news is not so good.

## DUCKS

Water conditions for duck nesting in 1985 improved in some areas and worsened in others. The May pond index, which estimates the amount of breeding habitat available to waterfowl, was up 74 percent from 1984 and was 17 percent above the 1961-84 average, in southern Alberta, Saskatchewan, and Manitoba. The July pond index, which estimates brood rearing habitat, was 23 percent above 1984, and five percent below the long-term average, for the same areas. Minnesota had generally good wetland conditions, but pond numbers were down substantially in North Dakota, South Dakota and Montana.

The 1985 duck breeding population (for 10 key species) in areas surveyed every year was down 19 percent from 1984, and 24 percent from the 1955-84 average. The estimated mallard breeding population was down 8 percent from last year and was 35 percent below the long-term average. The pintail breeding population was down even more, 20 percent below 1984, and 50 percent below the long-term average.

The U.S. Fish and Wildlife Service's fall flight forecast for ducks in the Mississippi Flyway calls for a 21 percent decrease from last year. For all flyways combined the fall flight forecasts for total ducks and for mallards are the lowest ever projected over the years for which data is available.



By Smedes

One bright spot for ducks is that locally in Iowa we had good water conditions during the spring and early summer. Local wood ducks, mallards, and blue-winged teal had a good nesting season. These ducks provide hunting opportunities in many areas, especially early in the season.

Another bright spot is the improved water condition in southern Canada. During the previous four years, it was so dry in most of the heart of Canada's "duck factory" that farmers tilled right across the bottom of many potholes and up to the margin of others. As a result, even though there was a big increase in pond numbers this year, many ponds had little or no nesting cover around them. If we have another year or two of wet weather, nesting cover will improve as farmers are unable to till some areas.

## GEESE

The outlook for geese is much brighter than it is for ducks. For snow geese,

production was good in nearly all of the colonies, most of which are west and north of Hudson Bay. A good fall flight is expected, probably similar to last year's.

Canada geese of the eastern prairie population, which nest on the west side of Hudson Bay and migrate through Iowa, had good production, and a slightly better than average fall flight is expected. Giant Canada geese in Iowa had a very good nesting season and continued to expand into new areas within the state.

In years of poor goose production, hunters are generally less successful. Flocks made up primarily of adult geese are difficult to decoy. This year, however, with a high percentage of young in the fall flight for both snow and Canada geese, the birds should decoy more easily.

## REGULATIONS

The five-year period of stabilized duck hunting regulations ended last year.





This program, with its associated studies, was intended to shed some light on the effects of hunting on duck populations. Results of the studies, especially the banding analysis, will not be available until late in 1986. So, we must set regulations for two seasons without the benefits of that information.

There have been suggestions that we should stick with stabilized regulations for two more years. However, we did not have "normal circumstances" this year. As noted earlier, duck populations continued to decline, with some key species at all-time low levels. Where water conditions improved in Canada there were many suitable ponds with no ducks. The Flyway Councils and the Fish and Wildlife Service were in agreement that some restrictions were in order.

The restrictions will involve cuts in both duck season length and bag limits. Recent duck seasons have been 50 days in length. This year, 10 days have been cut from the season and framework dates have been shortened. This will reduce the potential duck harvest in both the northern (early October) and southern (late January) states of the Mississippi Flyway by eliminating days when ducks are normally present in good numbers.

Point values will be raised for most ducks, which will reduce the daily bag limits for states such as Iowa that select the point system. This year, hen mallards will be raised from 70 to 100 points, last year's 25 point ducks (including drake mallards) will be raised to 35 points, pintails will go from 10 to 35 points, and all other 10 point ducks will go to 20 points (see box). This will redirect harvest towards ducks which are most abundant, and away from mallards and

pintails, which have particularly low populations at this time.

When we talk about restrictions, remember that it's not just Iowa that is restricting. Other states in the Mississippi flyway will have the same season length and bag limits, and other flyways will have proportional reductions from last year. As a result of the restrictions, we hope to send more ducks back north to make use of improved pond conditions.

The first segment of the duck season was Sept. 21-23. The second segment is zoned. North of Interstate 80, the season will be from Oct. 19-Nov. 24. South of Interstate 80, the season will be from Oct. 26-Dec. 1.

The goose season is from Sept. 28-Dec. 6, a special southwest goose zone has an Oct. 12-Dec. 20 season.



## LOCAL HABITAT CONDITIONS

In spite of the poor duck production, duck hunting in Iowa could still be good this fall *if* habitat conditions are favorable and the weather cooperates. Favorable weather during the hunting season is weather that pushes ducks into Iowa, but not through it. Southern Canada, northern Minnesota and North Dakota usually have cold weather, some snow and freeze-up of small wetlands by late October to early November. This results in movements of ducks into Iowa, where many stay until freeze-up in mid to late November.

The natural marshes in northern Iowa are quite low following the dry weather in July, and some are completely dry. Some have an abundance of food from the vegetation growing back on the mud flats, but several good rains are needed to restore the water levels. The reservoirs in southern Iowa have better habitat than last year because they did not have the spring flooding. They have a good food supply instead of bare mud flats, and if that food supply becomes flooded this fall, it should provide very good duck habitat.

## STEEL SHOT REQUIRED

Hunting migratory game birds except woodcock is prohibited on all lands and waters under the jurisdiction of the state conservation commission, the United States government, or any county conservation board; also on all waters and a 150-yard zone of land adjacent to these waters, including reservoirs, lakes, ponds, marshes, bayous, swamps, rivers, streams, and seasonally flooded areas of all types, while having in one's possession any shotshell loaded with other than steel shot; except that temporary sheet water, farm ponds smaller than two surface acres in size, and streams with the water less than twenty-five feet in average width at the site where the hunting is occurring shall be excluded from the steel shot requirement, provided they are at least 150 yards from the water areas described above.

Waterfowl hunting is prohibited while having in one's possession any shot shells loaded with other than steel shot within a zone bounded on the west by the Missouri River, on the south by Interstate 680, on the east by Interstate 29, and on the north by the Soldier River.

## WATERFOWL LIMITS

### DUCK POINT SYSTEM

Canvasback	.....	Pools 9 and 19-Closed on Mississippi River
Canvasback, Black Duck and Hen Mallard	.....	100 Points
Wood Duck, Redhead & Hooded Merganser	.....	70 Points
Blue-Winged Teal, Green-Winged Teal, Cinnamon Teal, Shoveler	.....	
Scaup, Gadwall, Wigeon & Mergansers (Except Hooded)	.....	20 Points
Drake Mallard, Ring-Necked, Pintail & All Others	.....	35 Points

Ducks: The daily bag limit will be attained when the last duck taken added to the point values of other birds bagged reaches or exceeds 100 points. The possession limit is the maximum number of species and sex which could legally have been taken in two days.

Geese: Daily bag limit is five including no more than two Canada and two White-Fronted. Possession limit is ten including no more than four Canada and four White-Fronted.

### NOTICE

For detailed regulations on hunting and trapping see the 1985 Iowa Hunting and Trapping Regulations brochure.

*Jim Hansen is a wildlife research biologist located at Clear Lake. He holds an M.A. degree in zoology from the University of Missouri. He has been with the commission since 1979.*



# FALL PLANTING

By Laura Spess Jackson



Fall is upon us. The sizzling heat of summer has faded, the days come to a close sooner and the first hint of red, orange and yellow colors has appeared on the tree leaves. It's a perfect time to be outside and if you feel you need an excuse to head outdoors, fall tree planting for wildlife may be just the right ticket.

Gerry Grebasch, Iowa Conservation Commission Reforestation Forester, believes the biggest advantage to fall planting is to spread out the work load. In the springtime people are busy cleaning and fixing houses, porches, garages and fences plus pruning plants and planting gardens and flowerbeds. Yet there is another season when trees and shrubs can be planted.

There are three aspects to plant growth — root, leaf and trunk diameter. Instead of trying to grow in all three directions at once, plants grow in season phases. Root growth occurs in the early spring then peaks again in the fall. Leaf development begins to surge as root growth declines. Trunk diameter increases after the plant is fully leafed out.

Nursery stock varies from relatively inexpensive bare root seedlings to more costly tree-spading transplants. In all planting procedures be sensitive to the plant's roots, said Grebasch, "it's what keeps the plant growing."

Bare root seedlings should be planted just prior to seasonal surges in root growth. Consequently, these seedlings should be planted in early spring or fall. If possible, new seedlings should be planted to coincide with seasonal rains. Otherwise, seedlings must be watered.

A seedling planted in the fall can adjust to its new surroundings and have a head start on growth the following spring. However, winter frost heaving may push some new plants out of the ground.

Balled and burlapped nursery stock costs more but can be planted well into July since the plant is larger and has more root development than bare root seedlings. The later they are planted, however, the more watering they require, since the seasonal rains and soil moisture will have decreased. Balled or



potted plants can also be planted in the early fall to coincide with root growth.

The ultimate in tree planting is using a tree spade to transplant larger stock from one area to another. The only time a tree spade can't be effectively used is in August when it is too hot and dry for the plant to properly adjust to the change. Tree spading recovers the largest amount of roots and is therefore the most flexible in planting period and highest in cost.

"Realistically though," said Grebasch, "there is nothing that we know of that you can just plant and forget." So even after the new tree or shrub is planted, it must be properly watered and guarded from the dangers of children, dogs, rabbits, lawn mowers, snow blowers and the weather. In most instances a chicken wire fence will protect the young plant.

Consideration must be given to selecting trees or shrubs that flourish in the area of planting. In towns and cities, the top soil may have been removed during construction. Therefore, many backyards are disturbed sites with localized, peculiar problems. Touring the neighborhood to see which plants grow well in the area and survive to maturity is advisable.

Native plants have evolved to survive Iowa's hot summers and wind-swept winters. Therefore, native plants generally require less care than non-native or exotic plants. However, some people may opt for the "showiness" of exotics, even if they have a limited life span.

Whether native or exotic stock, plants may be chosen to provide food or cover for wildlife. Conifers provide shelter to wildlife during the winter. Fruit producing trees such as mulberry, serviceberry, hackberry, elderberry, honeysuckle, cherry, highbush cranberry and crabapple supply a variety of food sources for wildlife. Dense hedges or vines provide nesting areas for songbirds.

Those unscheduled autumn days can be productive and refreshing times to plant trees and shrubs. It will give the plants a head start on next spring and put them well on their way to providing food and cover for wildlife.

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**Laura Spess Jackson recently joined the commission as an urban wildlife biologist. She holds a B.S. degree in wildlife biology from Michigan State University and an M.S. degree from Colorado State University.**

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## HOW TO PLANT SEEDLINGS

### Getting Your Seedling Home

Wrap the roots completely so they will not dry. You can use a paper towel and add water as the paper dries to keep the roots moist.

Keep the roots moist at all times.

Keep your seedling shaded when you take it home.

### At Home, Before Planting

Keep the roots moist at all times.

Keep your tree in a shaded area until you are ready to plant. The basement or garage can be a good place to keep your seedling if you are unable to plant it immediately.

### Find a Planting Spot

You should find out how large your tree will be when fully grown.

How tall will your tree grow?

How wide will the branches of your tree spread?

Make sure your tree will not grow into overhead utility wires.

Do not plant your tree too close to the house, garage, or other trees.

### Planting Your Seedling

Dig a hole large enough so all the roots can be spread easily.

Decide how deep your seedling was in the ground at the nursery. The bark on the part below the ground level is usually a lighter color. Sometimes a small swelling is found at ground level on your seedling.

Place your seedling in the hole and spread the roots.

Plant your seedling the same depth as it was in the nursery.

Place soil around the roots. Pack the soil firmly. (Do not pack the soil too hard as it will damage roots.) When the hole is two-thirds full of soil, add about a half gallon of water.

Let the water soak into the ground.

Place the remaining soil in the hole.

Add about a half gallon of water, letting it soak in slowly.

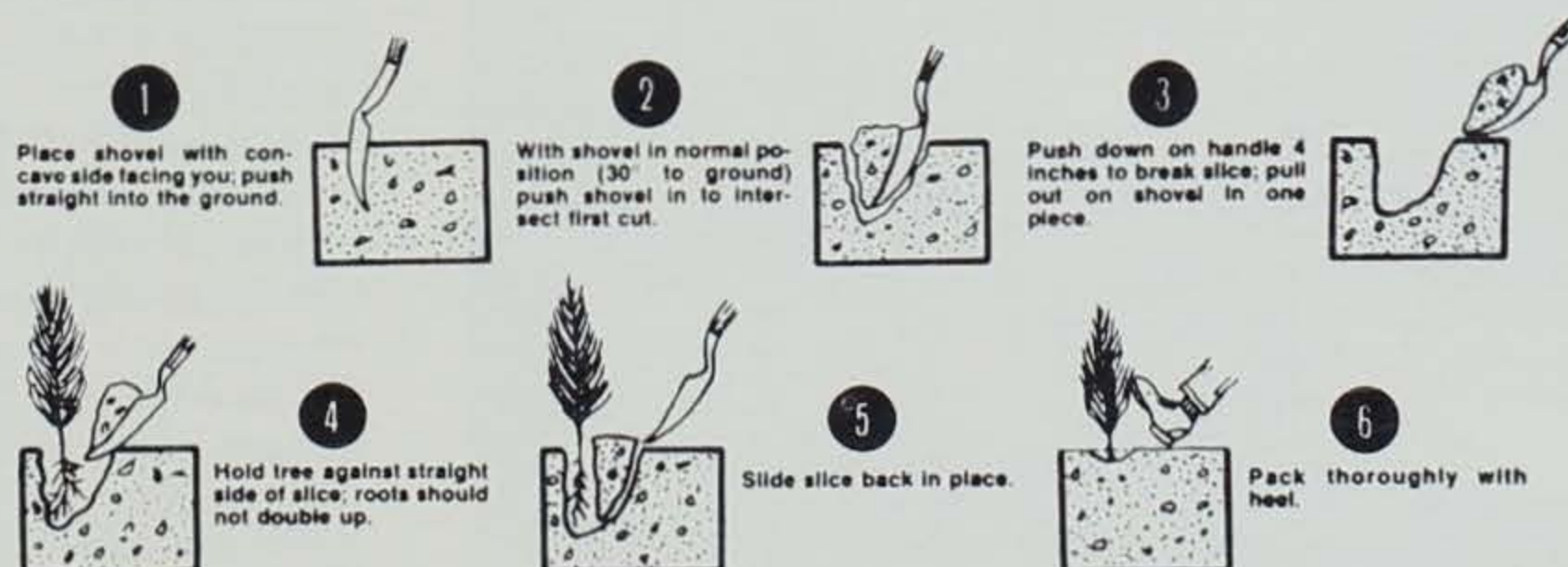
Leave the surface of the planting hole so it slopes slightly toward the seedling. This helps rainfall to flow toward the tree and get it to the roots faster.

Do not replace any sod around your newly planted seedling. Grass will use up water and food needed by your tree.

Leave soil bare or apply a mulch material to keep out weeds and grass.

Mulch could be coarse sand, ground corn cobs or sawdust. If ground corn cobs are used the depth should be about 1 to 2 inches. If sand or sawdust are used the depth should be about 1 inch.

Several types of planting bars as well as shovels are available. Here's how to plant with a shovel:



### Care

Water your tree once per week if very dry. CAUTION: Watering your tree too often can kill it.

Put two or three wooden stakes around the tree so people will not step on it or mow it off.

Place the stakes about 6 to 10 inches away from your tree.

Prepared by A.E. Grafton, extension forester, and Jerry Grebasch, state forest nurseryman.



## Park User Permit Free to Those Qualifying

Park user permits may be issued to qualifying individuals. Free permits will be issued in the county in which the applicant resides.

Persons requesting a free permit shall present the following items to the county recorder as proof of eligibility:

A medical assistance identification card for that person issued which is valid for the month during which the permit is to be issued; or

A written declaration stating that person is receiving food stamps and a signed release authorizing the Department of Human Services to confirm or deny their eligibility status; or

Proof of age 65 or over:

(a) A valid driver's license.

(b) A valid nonoperator's identification card.

A registration certificate for a motor vehicle which is owned by the applicant; a corporate owned vehicle which the applicant can verify as assigned for their personal

use; a vehicle owned by a relative for which the applicant certifies that the vehicle is their primary source of transportation.

Persons purchasing a permit who subsequently become eligible for a permit to be issued without fee shall not be entitled to a refund.

Most of the so-called "wonder drugs" of the 1930s to 1960s, such as digitalis for heart failure, reserpine for tranquilizers and vincristine for treating leukemia, were derived from plants that had been used for centuries by native peoples.

Birds sleep in many different places. Most sleep in old nests close to where they feed. But sea birds snooze while floating on the water and a ruffed grouse will dive into a snowbank to catch 40 winks.



*The Iowa Conservation Commission sponsored a drawing for a Coleman 1985 Aspen fold-down camper at the Iowa State Fair. Director Larry Wilson drew the winning registration, Tammy and Joe Eagen (left) of Burlington. Melvin Herold (right) of Herold Trailer Sales, Indianola in conjunction with the Coleman Company donated the first prize camper.*

## NEW TRAPPING RULE

A new rule affects trappers this year. Effective this fall, body-clasping (conibear-type) traps and snares may not be set in a road right-of-way within 100 yards of a dwelling inhabited by people, without permission of a resident of the dwelling adjacent to the road right-of-way, unless such traps are underwater.

## LEG MUST BE LEFT ON PHEASANT

Iowa pheasant hunters must be aware of a new rule. Beginning this Fall, it is illegal to transport a pheasant without a complete leg attached to the body. Since spurs are found only on cock birds, the leg-attached rule will help enforcement officers nab transporters of illegally taken, field-dressed hens.

## Animal Warning Device for Vehicles

*By Russ Glime*

Whistling cars are now heard on many of our highways since the invention of an ultrasonic device. Drivers and passengers cannot hear the noise but an unsuspecting animal that suddenly appears on the roadway can.

The cigar or torpedo-shaped plastic device mounted on the front of a vehicle emits a supersonic frequency when air is forced through it. Speeds in excess of 35 miles per hour are needed to create the sound. The signal is transmitted approximately 400 yards in front of the vehicle, according to manufacturers' statements.

Vehicles driven inside city limits at speeds lower than 35 mph do not emit the ultrasonic signal and will not scare the neighborhood cats and dogs.

This device has been tested on all types of animals in the United States and Europe at highway speeds. It has been proven effective on 80 percent of the animals tested and the only animal that the device does not work on is the cow.

All other animals will get off the roadway and users of the device state that the animal will lay back its ears and run off to the side of the roadway.

Many corporations have installed this device on their fleet vehicles. The low cost of the device, with prices ranging from \$12-\$30 depending on manufacturer, will more than pay for itself if it saves just one car-animal accident.

The Iowa State Patrol equipped all of their 400 vehicles after having \$13,000 worth of dents on state vehicles in 1983. Since installed, only two of their vehicles have been involved in animal accidents. The initial cost of installing the devices was saved during the first year alone.

If you live in an area that is high in deer numbers or do a large amount of traveling it may be worth your time to look into the purchase of this new device. Besides protecting the animal's life you are also protecting your own.

For more information on the devices contact the following manufacturers:

Eurotrans, Inc.  
PO Box 1946  
Mansfield, OH 44902  
(419) 524-4688

Sav-a-Life, Inc.  
PO Box 1226  
New York, NY 10025  
(212) 316-0307



## DONATIONS

Clarke Electric Cooperative, Inc., Osceola	Equipment and labor valued at \$200 for location of underground lines at Lake Ahquabi State Park
Pierce Brothers Repair, Indianola	"I" beam valued at \$115 for road and parking lot maintenance at Lake Ahquabi State Park
Anonymous	150 treated parking posts valued at \$150 for Lake Ahquabi State Park
King Transfer Company, Onawa	16 truck rims valued at \$160 for fireplace construction at Lewis and Clark State Park
Berry Lumber Company, Onawa	Lumber valued at \$75 for birdhouse construction at Lewis and Clark State Park
Pepsi-Cola Bottling Co., Inc., Waterloo	\$500 for shelter and fitness trail construction at George Wyth State Park
Inside Out Sports, Cedar Falls	Cross-country ski equipment valued at \$225 for trail patrol and public relations at George Wyth State Park
Eldon Ripperger, Burlington	Materials valued at \$175 for playground equipment construction at Beeds Lake State Park
Estherville Sand and Gravel, Estherville	14 brake drums valued at \$70 for fireplace construction at Ft. Defiance State Park
Anonymous	Water cooler valued at \$250 for the lodge at Gull Point State Park
Ft. Dodge Laboratories, Ft. Dodge	\$300 for ceiling fans for Dolliver State Park
Frank Lombard Lehigh	Harrow valued at \$150 for vegetation management at Dolliver State Park
Wark Tree Farm, Indianola	Seven trees valued at \$225 for Lake Ahquabi State Park
CRST Trucking, Cedar Rapids	30 truck rims valued at \$300 for fireplace construction at Pleasant Creek Recreation Area
Vigortone Ag Products, Cedar Rapids	30 truck rims valued at \$300 for fireplace construction at Pleasant Creek Recreation Area
Ray Mulford Concrete and Construction, Hampton	Bridge timbers valued at \$1,660 for bridge repair at Volga river Recreation Area
Tim Heth Anamosa	12 bluebird houses valued at \$98 for Wapsipinicon State Park

## Autumn Raptor Migration Along the Mississippi River in Northeastern Iowa

By Timothy Mason

The dictionary tells us that autumn is the season of the year between summer and winter, lasting from the autumn equinox to the winter solstice and from September to December in the Northern Hemisphere.

Along the Mississippi River in northeastern Iowa these months are by far the most exciting for birders. In addition to the passage flights of the warblers, the spectacular movement of waterfowl and shorebirds, this season is marked by large numbers of migrating raptors.

The Mississippi River Valley represents one of the four major flyways in North America, which millions of birds choose to follow twice each year.

How birds migrate successfully is still a partial mystery, but why birds migrate is fairly well understood. Fluctuation of food sources and changing climate are the two major factors involved in the seasonal movement of birds. The end of summer that portends the winter to come is marked in the northern latitudes by steadily shortening daylight hours and decreasing temperatures. The abundance of food, however, is at its peak and raptors take advantage of this to store a needed source of energy by increasing their body weight.

Raptors are birds of prey that must kill to survive. The diurnal, or daylight, raptors include eagles, hawks and falcons. The nocturnal, or nighttime, birds of prey are the owls. Their predominant food source is made up of small birds, rodents and other small mammals. When snow blankets the north country and temperatures drop to freezing or below, the small bird and mammal population de-

creases. The raptors' chances of survival are lessened with the decline of the food source. The breeding season has come and gone. If successful, the adult birds have taught the young to fend for themselves. When the wind shifts predominantly out of the north, aiding southward flight, migration begins.

In our area the autumn migration period can begin as early as late August with large numbers of broad-winged hawks flying in "kettles," (large flocks), soaring in thermals, gliding downward to new thermals, soaring again to great heights, but ever moving southward. The migration period continues on to late November and early December when the final bald eagles arrive from northern Minnesota, Wisconsin and Canada to spend their winter fishing on the upper Mississippi River.

During this time several thousand raptors, representing 16 species, can be observed from the promontories and bluffs overlooking the great river.

During the last several years David McIlrath, Jim Brown and myself, employees of Effigy Mounds National Monument near Marquette, have cooperated with Dean Roosa, Iowa Conservation Commission state ecologist, and Jon Stravers, "The Hawkman of Iowa," in monitoring and recording autumn raptor migration in northeastern Iowa. This program has added to the understanding of the importance of the Mississippi Flyway to raptor migration.

If you are seeking an inexpensive weekend activity, I suggest you checkout a bird field guide from your local library, borrow the neighbor's binoculars, load the kids in

the car and travel to northeastern Iowa for a truly enjoyable experience with nature.

Besides witnessing nature's raptor show, you will be able to take in the beautiful fall colors of the hardwood forests bordering the Mississippi River. The days are usually dry and fairly warm, with crisp cool nights.

Several ideal vantage points recommended for "Hawk Watching" are: Mt. Hosmer at Lansing, Effigy Mounds National Monument north of Marquette and Pikes Peak State Park south of McGregor.

Raptor migration is highly variable. On some days the observer's neck will get sore from looking upward, following hundreds of birds. The next day, due to barometric pressure, temperature and wind changes, one may not see a single migrating hawk in flight.

### Raptor Species Observed in Northeastern Iowa

Bald Eagle  
Golden Eagle  
Peregrine Falcon  
Cooper's Hawk  
Red-Shouldered Hawk  
Osprey  
Broad-Winged Hawk  
Red-Tailed Hawk  
Sharp-Shinned Hawk  
Goshawk  
American Kestrel  
Mississippi Kite  
Merlin  
Harrier  
Rough-Legged Hawk  
Swainson's Hawk

*Timothy Mason is a native of Marquette, Iowa, and has been employed at Effigy Mounds National Monument as a seasonal ranger since 1979.*



# CALENDAR OF EVENTS

## October - December, 1985

October 6 & 13	"Forest Color" Hike 2:00 p.m.	Swiss Valley Nature Preserve Dubuque County 319/556-6745
October 6, 13, 20 & 27	Sipping Cider	Hartman Reserve Nature Center Black Hawk County 319/277-2187
October 12	Raccoon River Canoe	Warren County 515/961-6169
October 12	Workshop — Attracting Birds to Your Backyard	Morgan Creek Park Linn County 319/398-3505
October 12	Stalking the Wild Fall Fungus with Lois Tiffany 10:00 a.m.-Noon	Three Bridges Park near Marshalltown Marshalltown County 515/752-3150
October 12	Photography Workshop for Kids and Adults	Eden Valley Clinton County 319/847-7202
October 12	Astronomical Sky Watch Observation of Halley's Comet	Malone Park Clinton County 319/847-7202
October 12	Young Trappers School	Hartman Reserve Nature Center Black Hawk County 319/277-2187
October 12	Fall Fungus Foray Edible Fall Mushroom Search and Sample	Briggs Woods Webster City Hamilton County 515/832-1994
October 12	Hawk Watch 10:00 a.m.	Five Ridge Prairie Plymouth County 712/947-4270
October 12	Raccoon River Canoe Trip	Raccoon River Warren County 515/961-6169
October 12-13	Heritage Days	Osborne Conservation Education Center Clayton County 319/245-1516
October 12-13	Autumn Seminar/"Friends" Craft Festival	Mines of Spain Dubuque 319/556-0620
October 12-13	Forest Craft Festival	Shimek State Forest Iowa Conservation Commission 515/281-5629
October 13	Autumn Films	Lake Meyer Nature Center Winneshiek County 319/534-7144
October 13	Fourth Annual Family Volksmarch	Hartman Reserve Nature Center Black Hawk County 319/277-2187
October 13	Autumn Ramble: A Hike Through the Woods 1:00 p.m.	Woodland Mounds Preserve Park Warren County 515/961-6169

October 13	Fall Color Walk 1:00 p.m.	Robison Acres Story County 515/377-2229
October 14 & Nov. 16	Uncle Ike Nature Program 10:00 a.m.-Noon	Marshall County 515/752-3150
October 15	Des Moines Audubon Society Meeting	Westminster Presbyterian Church Polk County 515/967-2728
October 18-20	Free Camping at 5 Polk Co. Parks	515/999-2557
October 19	Trapping School 9:00-Noon	Griswold Cass County 712/778-2244
October 19	Sixth Annual Turkey Trot	Hickory Hills Park Black Hawk County 319/277-2187
October 20	Russell White Nature Trail Hike 1-4:30 p.m.	Lanesboro Carroll County 712/792-4614
October 20	Bike Hike	Grand Mound to Allens Grove Clinton County 319/847-7202
October 20	"Aquatic Adventure" — Program and Hike 2:00 p.m.	Swiss Valley Nature Preserve Dubuque County 319/556-6745
October 20	Five Ridge Prairie Seed Collecting	Five Ridge Preserve Plymouth County 712/947-4270
October 20	Early Morning Meteor Watch 4-6:00 a.m.	Swan Lake State Park Carroll County 712/792-4614
October 20	Autumn Colors Hike 2:00 p.m.	Five Ridge Prairie Plymouth County 712/947-4270
October 20	Fifth Annual Orienteering Meet	Hickory Hills Park Black Hawk County 319/277-2187
October 20	Autumn Tree Walk	Lake Meyer Nature Center Winneshiek County 319/534-7145
October 20	Fall Color Walk 1:00 p.m.	Bear Creek Trail Story County 515/377-2229
October 21-27	"Last Chance Free- Golf Week" No Greens Fees	Jester Park Golf Course Polk County 515/999-2903
October 24	"Trapping Pros and Cons" 7:00 p.m.	Indian Creek Nature Center Linn County 319/362-0664
October 25	Halloween Night Hikes	Little Wall Lake, Jewell Hamilton County 515/832-1994
October 25-26	Trapping Clinic	Osborne Conservation Education Center Clayton County 319/245-1516

October 25-31	Last Chance Spook House	Chichaqua Wildlife Area Polk County 515/967-2596
October 26	Haunted Halloween Hikes by Reservation Only! Call After Oct. 16, 6:30 p.m.	Three Bridges Park near Marshalltown Marshalltown County 515/752-3150
October 26	Night Prowl 7:30 p.m.	Bingham Park Wright County 515/532-3185
October 26	Halloween Night Hikes	Briggs Woods Park Webster City Hamilton County 515/832-1994
October 26	Full Moon/Halloween 9:00 p.m.	McFarland Park Story County 515/377-2229
October 27	What's a Cattese? The Forgotten Paths	Mines of Spain Dubuque 319/556-0620
October 27	Fall Ramble	Hartman Reserve Nature Center Black Hawk County 319/277-2187
October 28	Armchair Adventures	Lime Creek Nature Center Cerro Gordo County 515/423-5309
October 31	"Halloween Nite Hike" 8:00 p.m.	Swiss Valley Nature Preserve Dubuque County 319/556-6745
November	Conservation Poster Month, Prizes For Des Moines Schools	Polk County 515/999-2557
November 2	DeSoto Bend National Wildlife Refuge Trip 8:00 a.m.	Cass County 712/243-3542
November 2	Who's Nuts! Collect, Sample and Learn About Iowa Nuts 10:00 a.m.-Noon	Timmons Grove, Albion Marshall County 515/752-3150
November 2	DeSoto Wildlife Refuge Tour (Day Trip) Reservations Required	Warren County 515/961-6169
November 2-3	DeSoto Wildlife — Loess Hills Tour (Weekend Trip) Reservation Required	Warren County 515/961-6169
November 3	Winter Bird Feeding 1:30-4 p.m.	Swan Lake State Park Carroll County 712/792-4614
November 3	"The World of Endangered Species" Chuck Cadieux 2:00 p.m.	Indian Creek Nature Center Linn County 319/362-0664
November 4	Soiled Soil in our Society	Lime Creek Nature Center Cerro Gordo County 515/423-5309
November 9	Waterfowl Migration Field Trip to Mark Twain National Wildlife Refuge	Meet in Grand Mound Clinton County 319/847-7202
November 9	Bird Feeder Building and Wildlife Habitat Development Workshop	Conservation Center Indianola Warren County 515/961-6169
November 9	DeSoto Bend Bus Trip	Plymouth County 712/947-4270
November 16	Bird Feeds and Feeders (Make and Take Affair)	Hillview Recreation Area Plymouth County 712/947-4270
November 16	Maple Creek Tour 1:00 p.m.	Maple Creek Wildlife Area Wright County 515/532-3185
November 20	Armchair Adventures for Children	Lime Creek Nature Center Cerro Gordo County 515/423-5309
November 23	Cheap, Cheap, Cheap, Inexpensive Bird Feeders	Lime Creek Nature Center Cerro Gordo County 515/423-5309
November 26	Tree Seedling Planning Workshop	4-H Building - Osceola Clarke County 515/342-3960
December 14	Star-Lite Ski Night 7-10:00 p.m.	Swan Lake State Park Carroll County 712/792-4614
December 14	North to Alaska (Slide Program)	Hillview Recreation Area Plymouth County 712/947-4270
December 14	Bird House Building	Lake Cornelia Park Wright County 515/532-3185

## CONSERVATION Winners & Losers



*Most roadsides in Iowa harbor wildlife and curb erosion. Road ditches that are plowed and planted serve no conservation purposes. Counties that permit roadside planting allow farmers to gain only a few more bushels at harvest. Considering the over supply of farm products and the consequent low prices, these few extra bushels offer only a dubious advantage.*



# WARDEN'S DIARY

## The Tip of Iowa

By Jerry Hoilien

I was working with Bob King, a Missouri Agent. He was living just across the Missouri line at Kahoka then and was my neighboring officer to the south and an outstanding man.

He was a lot younger then, but so was I. We were floating the Des Moines River together, checking fisherman, as the river forms a common boundary between the two states.

They tell me that when they were surveying Iowa for statehood, the surveyors came up the Mississippi, took a wrong turn, and went up the Des Moines River almost to where Farmington is now, before they realized the mistake and had to backtrack. That's the way they tell it down there. I don't know if it's gospel but that's what I heard! That's how we got our southeastern tip.

At any rate, it's a pretty part of the country and lots of people from both sides like to fish in the area. The Missouri wardens and I always liked to work together. If there was a fisherman on the Missouri side, they'd check 'em and if they were on my side, I'd check. Those floating in boats we'd both check. We had a little agreement. We'd honor either state's license, but the trot-lines, diddy-poles and jugs had to be kept on the proper side. It worked well.

Bob liked my Grumman Sportboat rather than his john-boat, and that day I was showing off my boat handling expertise. Coming up along-side a boat, I'd drop the motor into reverse, give it a little gas and "sidle" the boat in so close he could take hold of the other boat and lock gunnels. Real smooth. We'd checked a lot of fishermen and toward the end of the day we were approaching the mouth of the Des Moines River where it joins the Mississippi just below Keokuk. Bob had taken over running the motor and we spotted a boat anchored out in the middle, right at the mouth. We were approaching downstream, but Bob didn't swing around to approach in their same direction. Instead, he reached back and flipped the gearshift and revved up the motor, only he got it in neutral instead of

reverse. The current was strong there and we hit that boat *so* hard, it nearly bounced both those fishermen out into the river. Luckily, they were both friends of mine and were understanding, but a little disgruntled. I don't know to this day if either one had a fishing license — both of us were too embarrassed to ask.

Bob King was an up-and-coming young Missouri Agent when I first met him and it pleases me to tell you of his years of work and dedication. He was appointed to head Missouri's first covert (undercover) unit in which he pioneered many of the procedures that are used by many states today. He presently heads Missouri's law enforcement division, one of the finest in the country.

We were loading up the boat at Keokuk's ramp and had three small catfish we'd seized from an unlicensed fisherman. Bob asked, "What in the world are you going to do with those?" "Got a special place for 'em," I smiled, putting them in a plastic bag. A good friend of mine, Russell Broomhall and his wife, Katherine, ran the County Home near Keokuk and that's where I always took my confiscated fish and game. He always did a fine job of taking care of it and his charges really seemed to enjoy something different to eat from time to time. A couple of weeks before I had confiscated a whole boat-load of fish from an illegal commercial fisherman from Illinois. Russell and his crew had worked half the night cleaning and freez-

ing them all. I knew he wouldn't really welcome any more fish right away, but he would never turn them down.

We drove uptown to "Toots" Delahyde's Sheriff's office. I hung that small plastic bag in the pop cooler and asked the deputy to call the county home and tell Russell the game warden had some "more fish" for him! Thirty minutes later he pulled up with a big truck and three men to help him, muttering something about "more fish." The deputy pointed to the cooler and when Russell saw that plastic bag with those three little catfish, he turned the air blue and started looking for the #\*@&#\*%#@ game warden. We were long gone and I waited several weeks before stopping for a cup of Katherine's good coffee. By that time Russell could appreciate the humor in it all, but I've always figured he'd get even one day. I miss those good people.

Isn't it strange how hard it was to recognize then, what we hold so dear today? We go through life so fast, we can't stop to smell the flowers. Or to know and recognize what a friend we have or a talent we're seeing. Somewhere I read about "the sins of omission," of our failure to give a glass of cold water or a word of encouragement to those who thirst for it.

Go fishin' — remember what a minister told me once — "The Good Lord doesn't take off for time spent with fish pole in hand!" But don't forget your license.

## Classroom Corner

By Robert Rye

There is a group of animals which are adapted to both land and water. They have limbs for walking on solid land, lungs or specialized skin for air breathing and senses for seeing and hearing on land. Yet for breeding, most return to water where the young develop.

See how well you can answer the questions on this group called amphibians.

1. The group of animals recognized for having a backbone and legs but without hair, scales or feathers.
2. Number of species (different kinds) of amphibians and reptiles in Iowa.
3. Amphibians with tails (as adults) are called?
4. Amphibians whose warts are filled with extremely toxic substances are called?
5. The most common toad in Iowa is?
6. The smallest amphibian in Iowa?
7. The largest frog in Iowa?
8. If you handle amphibians or reptiles, the last thing you always do is?
9. Amphibians completely mottled from head to tail with small light and dark spots (will grow to 12 inches)?
10. Name given to a person who studies amphibians?

ANSWERS:

1. amphibians 2. 60-70 3. salamanders 4. toads 5. American toads 6. cricket toads 7. bullfrog 8. wash 9. tiger salamander 10. herpetologist



# County Hunting Areas in Southwest Iowa

By Mike Wallace

Autumn is just around the corner, and, with the urge to enjoy the fall colors, comes the urge for many outdoors people to get out their hunting equipment and scout around for potential hunting "hot spots." County conservation board areas, particularly in southwestern Iowa, are often overlooked as good hunting sites, so let's take a look at some of the better county public-hunting spots in that corner of the state.

Guthrie County is fortunate to have both the Middle Raccoon and the South Raccoon Rivers meandering through it, providing a diversity of habitats. Most of the Guthrie County Conservation Board's parks are located along these river corridors. The board's largest area is the S.E. Robinson Wildlife Area, located six miles southeast of the town of Panora. This 110-acre area was acquired with the aid of the Iowa Natural Heritage Foundation and is open to public hunting. It is composed of oak-hickory forest, intermixed with upland prairies and wildlife foodplots. A good population of wild turkeys exists, as well as excellent populations of white-tailed deer, squirrels, rabbits and raccoons. Guthrie

County natural areas are also good for pheasant and quail hunting.

Audubon County takes pride in its 444-acre Littlefield Recreation Area, located six miles southeast of the town of Exira. This is a fine area for pheasant hunting and almost 100 acres are provided for that purpose. In addition to the public hunting tracts, areas of the park not managed for intensive recreational use are managed for wildlife. Restricted trapping is also allowed.

Madison County's Clanton Creek Recreation Area, located 10 miles southeast of Winterset, is the largest that board manages, including 714 acres of timbered valleys, restored prairies and wildlife foodplots. This area provides good turkey hunting, as well as deer, fox, coyote and raccoon hunting. Quail and pheasant hunting have gradually improved over the last five years and will continue to do so as better nesting cover and habitat are developed.

Along the Missouri border, Decatur County's Little River Recreation Area, located one-half mile west of Leon, is managed jointly by the Conservation Board and the Iowa Conservation Com-

mission. This 2,100-acre area provides excellent waterfowl and upland gamebird hunting. Most of the land surrounding the 787-acre Little River Lake is open to public hunting.

Lake Icaria is managed by the Adams County Conservation Board. This popular park is located four miles north of the town of Corning along Highway 148. This 1,900-acre park, with its 700 acres of water, provides for a variety of activities, including hunting. Most of the park property around the lake is open to public hunting, and good populations of pheasant, ducks, geese, deer, rabbits and squirrels are present.

One good hunting area in Harrison County is the Gleason-Hubel Wildlife Area, located one mile south and one mile east of the town of Little Sioux. This 165-acre area was a gift to the Conservation Board by the Gleason and Hubel families. The steep ridges of the Loess hills abound with deer and wild turkeys.

Mills County, in extreme southwest Iowa, manages Folsom Recreation Area, located six miles northwest of the town of Glenwood. This is the Mills County Conservation Board's largest area, totaling 100 acres. This wildlife management area has a 50-acre borrow pit that allows good fishing and waterfowl hunting. The surrounding habitat is utilized by upland game.

Most of the other county conservation boards in southwest Iowa, including Adair, Cass, Clarke, Montgomery, Pottawattamie, Shelby and Union counties, provide limited hunting opportunities on their public areas.

Southwest Iowa is fortunate to have such a diverse and unique geography which provides hunting habitat for all types of wildlife. Whether you hunt pheasants, waterfowl, squirrels, turkeys, or deer, southwestern Iowa is the place to go. Contact the local county conservation board for more information on these "sleeper" areas, and then get ready for opening day!

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*Mike Wallace is director for the Guthrie County Conservation Board. He is a 1981 graduate of Iowa State University with a degree in fisheries and wildlife biology. He has been with Guthrie County since 1982.*

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Guthrie County Conservation Board



# FUEL FROM YOUR FOREST

By John Tibben and Jim Bulman

Producing fuelwood from your timber for sale or use seems simple enough. The real trick is to do so without destroying other values that may be important to you.

## TIMBER VALUES

Timber values can be enhanced by using firewood cutting as a management tool. Generally you want to maintain in the stand trees of the desired species, of good health and quality. By cutting undesirable species for fuelwood you can increase the long-range value of your timber. In combination with other values that may be important to you, building a timber inventory is like having a savings account. It can be liquidated when needed, or it can serve as collateral for a loan. Timber is not as liquid as some investments and not all lenders at this time are willing to accept timber as collateral, but the number is growing.

Timber represents a low cost, low risk investment. Fuelwood harvesting can be used to offset the cost of carrying timber throughout the long-range life of the investment.

## WILDLIFE

Is wildlife important to you? If so, you need to be aware of the effect that firewood cutting can have on wildlife. Wildlife values can be in direct conflict with timber value, but they need not be, if you remember that most dead trees are too valuable to use as firewood. Dead trees are not automatic candidates for the stove. They can represent a tremendously valuable resource for wildlife in terms of food and shelter. On the other hand, they can be almost worthless as fuel, and dangerous to work on to boot.

Usually, dead trees should be left standing in the timber. There is a strong temptation to utilize them because they are thought to be dry and cutting them "cleans up" the timber. Dead oak, in the larger diameters, can be as wet as live oak. Dead trees can be harder on your saw and can harbor insects that you do not want to bring indoors.

Any dead trees that show signs of bird feeding activity should be left standing. They represent food sources for many birds and nesting and denning habitat for many birds and other animals.

Some dead trees do make fair firewood. Many dead red elms appear

not to be used by wildlife. They may be too hard, or more likely, do not have insect populations to attract woodpeckers. Cutting of freshly killed trees may have little impact on wildlife. At least, if they are of small diameter, they will not have nests and dens.

Dead trees have very little affect on timber growth, because they are not competing for space and nutrients. The argument for cutting dead trees to improve your timber is absolutely without validity.

## CHARACTER TREES

Character trees are spreading oaks, maples, elms, or other large trees that take up to a half acre or more of space; trees that have interesting or beautiful flowers, foliage, or form; trees that have unusual burls or defects, or trees which grow in such a way as to suggest other forms. These specimens are often cut for firewood because they are misshapen or large. Yet you may value and spare them because they are special and lend interest and uniqueness to their surroundings.

Whether you are cutting firewood in your own timber, as a guest of someone

else, or as a commercial cutter, we hope you will recognize the other values in a forest and give them some consideration. As a landowner, you certainly would want to consider timber values, wildlife and aesthetics. As a guest cutter, your friend will appreciate your concern for his other values. And, if you are a commercial cutter, you have an obligation to recognize that these other values exist.

To help you make the proper fuelwood harvesting and other forest management decisions, assistance is available from district foresters of the Iowa Conservation Commission.

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*John Tibben is a utilization forester for the commission. He holds a B.S. degree in forestry from the University of Arkansas and has been with the commission since 1971.*

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*Jim Bulman is a regional forester for western Iowa. He holds a B.S. degree in forestry from Iowa State University and has been with the commission since 1960.*

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Ron Johnson





Illustration by Rex Heer

# Nature Tale for Kids

## DANA, THE IOWA MONARCH

By Dean Roosa

Monarch butterflies, known in scientific circles as *Danaus plexippus*, are perhaps Iowa's best-known butterfly. The orange and black coloration is familiar to every school child and their habit of clustering on trees in autumn is a common sight. The most astounding fact about the butterflies is their migration to California and Mexico for the winter. They are sometimes called the "milkweed butterfly" because they require... but wait, I'm getting ahead—let me tell you the story of Dana, the Iowa Monarch.

In a roadside ditch near a small town on the banks of the Mississippi River in eastern Iowa, a female monarch butterfly was searching for a plant on which to lay her final egg. She finally found just

the right plant, a milkweed, and laid an egg on its leaf. She then flew out over the prairie to her final resting place. She was old for a butterfly, her coat tattered and worn. Laying the egg was the butterfly's final act and one important to the continuation of the species. Selecting the milkweed was necessary, because the young caterpillar, or larvae, will feed only on this plant. So strong is this association that this species of butterfly is often called the "milkweed butterfly." On the fifth day, the green, flask-shaped, pitted egg hatched. From the egg a tiny caterpillar wiggled free. Instinctively, the youngster began to munch on the home milkweed, then on the neighboring milkweed, growing larger with each munch. As the caterpillar grew, it outgrew its skin and molt, or shed its tight covering. This happened four times in 10 days, until it became a brightly colored yellow and black, two-inch

caterpillar, which now carefully chose a spot on the underside of a leaf for its great transformation. Sinking its posterior pincers into the midrib of the leaf, the caterpillar hung downward, shed its striped skin for a final time and became a hard-cased resting pupa. From all outward appearances, life ceased.

The light-green cocoon, embellished with gold flecks, hung by a thin thread on a milkweed plant in a roadside ditch. Nine days later, an observant sixth grade teacher saw the beautiful pupa case and took her class to observe it. For two days, nothing happened. Then, on the third visit, 12 days after the larva had entered the pupa case, the case had become a dark color—black and orange bands were now visible through the case. Something was about to happen! Teams of three students were assigned to make periodic trips to the site and to notify the class if events changed. Just as school



was dismissed, an excited team announced that things were progressing rapidly. The entire class of 24 hurried and crowded around the milkweed in the roadside ditch. Motorists stopped. Police worried, but the class was able to see Dana, a beautiful male monarch butterfly, emerge from the hard case, unfold its wrinkled wings, hang on the pupa case, and finally fly to the nearby prairie to begin feeding. It was very late August, and Dana had much to do.

Dana fed on nectar in flower gardens and on the prairie for several days. He noticed many monarchs, strangers to him, arriving in his prairie. The nights were getting cool and Dana began to follow the other monarchs south and west. Each night they would select a certain tree and congregate by the hundreds. These trees had been serving as monarch motels for decades, and had the right texture for them to cling to.

Feeding by day, roosting by night, the monarch swarm worked their way hundreds of miles southwest. Many were lost as they crossed highways, but the further they went the more monarchs there were, since all the monarchs in North America were heading for the same area — southern California and northern Mexico. The branches of the trees were now weighted down nearly to the ground by the mass of monarchs. Dana hadn't realized there were so many monarchs in the world! Finally, they reached the pinegroves of Mexico, now a national reserve. Feeding by day, roosting by night, Dana was enjoying himself immensely.

In early spring, the colony began to break up. Dana suddenly felt the need to depart and head back towards Iowa. His coat was not the beautiful new coat of the previous fall, but now getting tattered and worn. In the grasslands of Texas, Dana met a pretty female monarch, also from Iowa. They were constant companions for several days. Then the female laid eggs on a milkweed plant. However, Dana and his mate were old now, their biological purpose was complete. Somewhere in the Texas grasslands Dana and his mate died. The sequence of events that brought Dana into the world were repeated and a beautiful new monarch, Dana's son, emerged and started the journey north.

On May 25, the sixth grade class in the Mississippi River town in Iowa saw a monarch butterfly flitting around the field close to the school. I won't guarantee it, but I think it was Dana's son, returning to the hills of eastern Iowa, back to his roots.

# Wildflower of the month

Ken Formanek



## COMMON MILKWEED (*Asclepias syriaca*)

By Dean M. Roosa

One of Iowa's most successful wildflowers, and one which provides a certain amount of beauty to roadsides and fields, is the common milkweed (*Asclepias syriaca*).

Although it is a native plant, it occupies the same habitats as introduced weeds — roadsides, disturbed field, waste ground, but also is sometimes cultivated in gardens. It grows to a height of five feet. It has opposite leaves which may become nine inches long and four inches wide, and are dark green above and light green or whitish beneath. Flowers are borne in the axils of the upper leaves and occur in umbels. They are pale pink to lilac, very fragrant and thus attractive to insects.

Pollination occurs when a pollen sac is torn loose from one flower and dragged into a slit of another flower. It is a difficult process and this explains why only a few pods are found on any single plant.

Break the stem and a white milky juice forms — hence the common name.



This juice was once used in a search for a rubber substitute. The pods are filled with fluffy, parachute-like structures attached to the seeds and were used as fillers for life preservers during World War II.

A remarkable biological phenomenon exists between this milkweed and the monarch butterfly. Because the larva needs to feed on this plant, the adult monarch often lays eggs on the surface of the leaves. The acrid juice may impart a bitter taste to the butterfly.

So, look again at this very common plant; it is a rich lesson in history, economic uses and ecology. You may even find it an attractive part of Iowa's vegetation.





Michelle Conner

## Button, Fork, Pin Cushion and Hat Rack

By Lee Gladfelter

One major topic of conversation when deer hunters get together is tales of huge antlers, past and present. The whitetail buck is one of the most highly prized big game trophies in North America, and the Iowa whitetail is famous for its excellent trophy characteristics. The success of a deer hunt is often measured by the antler size of harvested bucks, rather than their weight or amount of meat they will provide. Each year I receive many questions from hunters and others about deer antlers: "What causes bucks to have 'spike' antlers?" "When do bucks drop their antlers and what happens to them?" "What causes the growth of nontypical antler points?" "Why are some antlers larger than others?" I would like to answer these and other questions about the mysterious topic of "antlerogenesis" or antler growth and development in whitetails.

Antlers are living tissue that resemble true bone in chemical composition and cellular structure. They grow from elevated platforms called pedicels located on the frontal bones of the skull.

These pedicels are commonly called "buttons" on fawn bucks because they are only about one-half inch long and are rarely visible above the hair. A buck's first set of antlers starts growing from these pedicels when he is about one year old. Antlers will be developed and shed annually but pedicels will remain in place for the animal's entire life.

Annual antler growth begins in March or April in response to changes in day length (photoperiod), which affects the secretion of hormones from the pituitary gland. Growing antlers are covered with a hairy skin called "velvet" which contains a generous supply of blood vessels that nourish the bone with minerals. Antlers are soft and tender during this period, and injuries often lead to deformed antlers or growth of "nontypical" antler points. Because growing antlers are very sensitive, bucks protect themselves by reducing their movements, and staying in dense cover.

Maximum antler growth is reached in August or September. At this time calcification or hardening of the antlers then

begins. The blood supply to the velvet is cut off, causing the velvet to dry and begin to peel. This process seems to create an itching sensation, because bucks rub off any remaining velvet on small trees and bushes. These "buck rubs" can be identified from the shredded bark left after a buck vigorously thrashes his antlers along the tree trunk. The finished, hardened antler varies in color from white to brown, depending upon the amount of staining by blood vessels and the type of tree or bush used as a rub. Testosterone is an important hormone in controlling this entire process of antler development.

Antler size is determined by the buck's age, genetic background and quality and quantity of food. When a buck reaches 1½ years-of-age, it will have grown its first set of antlers which have four to 10 typical points. A typical point is any projection from the top of the main beam that is at least one inch long. Antler size increases as bucks age, but during the first three to four years of life, body growth has priority over antler



**Antlers become weapons as bucks fight for breeding dominance (left). Rack size continues to increase (right) as buck grows older.**

development. Once maximum body size is obtained, nutrients can be used solely for antler production. Peak antler size occurs when a buck is  $4\frac{1}{2}$  to  $7\frac{1}{2}$  years old, after which the size of the rack may actually decline. In Iowa, only about three out of every 100 adult bucks harvested have reached their prime years. During these peak years, antlers may have from eight to 12 typical points and any number of nontypical points. The age of a buck cannot be determined by counting antler points, since this is highly variable. However, overall mass of a rack, especially diameter of the main beams, does give an indication of age.

Antler development is dependent upon a buck's diet. A plentiful and nutritious food source in the spring and early summer is critical to good antler growth. A good supply of energy, protein, calcium and phosphorus is particularly important. In Iowa, bucks reach maximum body and antler size at a younger age than in other parts of the country because of the nutritious forage available. Yearling deer that grow "spikes" (unbranched antlers) or "forks" (antlers with only two points per side) are relatively rare here because they indicate poor nutritional condition. Bucks in good physical condition usually retain their antlers longer than those in poor condition.

Genetic background is also a factor necessary for good antler growth. Shape and size of antlers tend to be passed from one generation to the next. Some bucks will never produce more than eight points, even in their prime years, while others produce 10 or 12. In the same light, some bucks produce very wide racks while others produce only narrow ones. Many trophy bucks are taken in Iowa each year because of a strong genetic background for big "hat racks."

A large set of antlers along with a strong body are important for successful courtship of females during the fall breeding season. Bucks establish dominance through sparring matches that begin right before the "rut." The function of these sparring matches is to establish a hierarchy or "pecking-order" that will be honored by other bucks when does are ready for breeding. Antlers are significant in establishing this hierarchy because they closely reflect body size and the overall physical condition of a buck. This ensures that breeding is done by the

Lee Gladfelter



strongest bucks, and that the best genetic background is maintained in the herd.

Sparring matches are basically shoving contests which end with the smaller buck withdrawing at an opportune time. The contests are important in assessing a buck's strength compared to others in the neighborhood. Antlers provide a visual indicator for each buck's position in the breeding hierarchy, which reduces the need for fighting. Bucks of equal size and strength may become involved in more serious battles for breeding dominance. These bucks charge at each other and engage their antlers, pushing each other until one is forced to retreat. These battles usually end without injury to either participant, except for a few scratches, hurt pride, or maybe a broken antler point. Bucks may occasionally get their antlers locked together, and both may perish if they cannot free themselves.

In very rare circumstances, females may develop a set of antlers. These antlers are usually short spikes covered with velvet, although I have seen some that are branched and polished. Does with antlers are generally fertile and capable of producing and raising fawns. These abnormalities are probably caused by unusually high levels of the hormone testosterone.

Bucks shed their antlers in late January or February upon completion of the breeding season. These antlers are difficult to find in the wild because they are eaten almost immediately by rodents, which utilize the minerals. About four to six weeks later, antler growth starts all over again with the velvet-covered buds of a new rack.

Iowa hunters who successfully bag a trophy buck can enter the rack in Iowa's

big game records. In order to qualify for an award, the rack must be measured by an official scorer and meet a minimum score. The scoring system used for Iowa records is the same as that used by the Pope and Young and Boone and Crockett Clubs. The Pope and Young Club maintains national records for big game taken during archery seasons; the Boone and Crockett Club keeps records for firearm hunters. Racks with many nontypical points that look like a "pin cushion" are placed in a separate category. A rack's score is obtained by combining measurements of the length of each point over one inch, length and diameter of each main beam, distance between the main beams and credit for good symmetry between sides. Iowa's number one typical rack is scored at  $199\frac{5}{8}$  inches and the largest nontypical rack is scored at  $282\frac{5}{8}$  inches. Iowa has placed deer racks in the top 10 in the world with both the Boone and Crockett and Pope and Young Clubs. Hunters who would like to have a trophy deer rack measured should contact the Iowa Conservation Commission, I&E Section, Wallace State Office Building, Des Moines, IA 50319-0034 for a list of official scorers.

Antlers are important because they play a vital role in the breeding cycle of whitetails while providing a benchmark to measure success of deer hunters. Scientific game management will ensure that trophy whitetail bucks will always be available to hunters who set high standards for their sport.

**Lee Gladfelter is a wildlife research biologist located at Boone. He holds an M.S. degree in wildlife conservation from the University of Idaho. He has been with the commission since 1969.**



## County Conservation Board Feature

### Marshall County



# Spirits, Ghosts and Goblins ...in County Parks?

By Judy Levings

From a side trail, four men wearing brown cloaks carry a casket out of the darkness toward the audience. A group of mourners, dressed in black, trudge behind. A lantern lights the face of a tall, bearded man wearing a black suit and top hat. He carries a white parchment scroll from which he reads an epitaph for the heath hen, the passenger pigeon and other extinct species. He says he does this every time a species becomes extinct. It used to be every century. Now, it's once a year, and the weight upon him and his companions is great. As each species is named, the casket is opened, and its remains are displayed. One of the pallbearers reaches for his handkerchief and slowly wipes his eyes as the mourners sob.

This is only one of the many "happenings" which visitors encounter on the Haunted Halloween Hikes sponsored annually by the Marshall County Conservation Board. As a unique alternative to trick-or-treating, the family-oriented hikes are designed to entertain while emphasizing a strong environmental message.

The production is held at Three Bridges, a 13-acre park on the Iowa River near Marshalltown. The area, which is the site of an abandoned quarry, a stone-cutting mill and a 100-foot suspension bridge, lends itself well to such "ghostly" happenings. The mile-long trail, lit by jack-o-lanterns, winds its way to the top of an 80-foot bluff.

Guides lead small groups of people to each of the stops along the trail. More than 40 volunteers and staff members act as trail guides, actors, traffic coordinators and refreshment servers. Costuming, speeches and special effects are the responsibility of the volunteers, who entertained more than 300 people participating in the hour-long hikes last year.

"Many people have the mistaken impression that the hikes are only for kids or that they will scare small children. They soon learn differently after attending one," says Jean Eells, environmental

education coordinator for the Hamilton County Conservation Board. Mark Mueller, seasonal naturalist for the Black Hawk County Conservation Board adds that, "kids are spellbound; it's often their first time in the woods at night."

The guide, Father Time, dressed in a brown cloak with an hour glass hanging from his belt, takes the evenings' visitors through the dark woods to the home of each spirit.

He stops first where a beautiful, young woman wearing a flowing white dress stands by the water's edge with a white wolf. "I am the water fairy, and both I and the water wolf stand guard over this precious resource. We ask you for help. Many people have forgotten how they depend upon water for life. They are destroying the animals that live within it, and you, too, will be destroyed. Remember this and tell others. If you don't, we are all surely doomed."

The light fades and Father Time silently leads the group up a hill to a bridge. Skulls and bones are scattered across the entrance. The guide pleads for the audience to be quiet and to cross the bridge slowly. The bridge creaks as the visitors cross. A tall, dark creature draws his sword and blocks the exit. The guide explains that the Sentry must collect promises from everyone who passes — one to the woods and one to wild-

life. The guests tell him their promises, and the Sentry lifts his sword to let them pass.

The winding trail takes them to an old woman with roots on her face and topsoil for hair. "The Soil Witch is a crusty old character who's tired of being treated like dirt," the guide explains. "I'm tired of being stepped on, and I'm not going to take it anymore," she croaks. She explains how 150 years ago she was in her prime with 18 inches of topsoil, but after humans came, things went downhill. "Now look at me. You've misused me, dumped me into streams and rivers, refused to care for me. Now I'm tired. You've reaped the benefits from me without thinking of future generations. Now I'm vanishing, and you still waste me. You and yours will die if I am not saved!" With gnarled stick in hand, she's not afraid to take on any human whom she claims abuses the land. Father Time quickly guides the group along the trail to visit other spirits.

The reasons for sponsoring such adventures are to get people out to the parks and experience nature in a different way and to get them to think about our natural resources and what is happening to them.

Other counties and resource agencies have held successful halloween hikes. Black Hawk, Hamilton, and Story County Conservation Boards sponsor hikes, as does the Corps of Engineers at Saylorville and Indian Creek Nature Center in Cedar Rapids. Some groups ask for a nominal fee and/or advanced reservations.

*Judy Levings is a naturalist with the Marshall County Conservation Board. She graduated in 1981 from Iowa State University with a degree in fisheries and wildlife biology. She has been with Marshall County for four years.*



Garry Brandenburg

*The Soil Witch*



# Central Iowa is Bursting with Color

By Jane Messenger

October is here and central Iowa's parks and wildlife areas are bursting with color. The brilliant reds, yellows and oranges jump out at you from every direction.

It is impossible to imagine this beauty without seeing it for yourself. Be prepared to enjoy the fall scenery, bring a camera and a picnic lunch.

## Chichaqua Wildlife Area

Beginning in Des Moines, drive to the Chichaqua Wildlife Area near Elkhart. The colorful, timbered terrain is located along the Skunk River just east of Elkhart (see map).

Take a walk around the pond and visit with the people who will be fishing, hiking and training their dogs in a specially marked area. One of the nicest things about Chichaqua is the peacefulness you will experience.

## Hickory Grove Park

When leaving Chichaqua, plan for some extra time to enjoy the added attractions that the county roads have to offer. This will give you a chance to see some of Iowa's farmland as you travel to Hickory Grove Park near Colo just off Highway 30.

At the park, the first sight that will attract your attention will be the lake, sparkling from the rays of morning sunshine. Surrounding the lake are colorful timbered picnic and camping areas, such as Goldfinch Hollow and Snowbunting Lodge.

Fishing is another attraction. Hickory Grove Park offers a bait shop and boat rental for anglers. By the way, local anglers say the lake offers good fall fishing for crappie, catfish and bass.

## McFarland Park

Another area which also displays a dazzling array of fall colors is McFarland Park on the east edge of Ames. This picturesque park is a favorite among ISU students and Ames residents.

The park is tricky for first-time visitors to find. Westbound on Hwy. 30, turn right at the first street beyond Interstate 35 and follow it for several miles. The last mile or two is gravel but the park is worth the trip. Turn right at the "T" intersection and head straight for the park.



Jerry Leonard

Besides having the colorful trees brighten up the area, McFarland has an adjacent prairie to give added beauty. Amber prairie grasses mixed with fall-blooming flowers give an extra accent to the trees.

A paved sidewalk weaves around the lake and through the trees, giving you the opportunity to choose the ideal spot for a picnic lunch.

## ISU Campus

Although the next stop is not a park, the ISU campus is at its peak of beauty during the fall. Return from McFarland as you went, and turn right/west on Lincoln Way. With the trees in full color, even walking to class is enjoyable.

Iowa State alumni may wish to relive their college days by walking to the library, feeding the ducks and swans (Elaine and Lancelot) on Lake LaVerne, having a drink at the Maintenance Shop, or getting kissed under the campanile.

After visiting ISU, you will realize why it is said our campus is the most beautiful in the state.

## Ledges

For the grand finale, take a tour of Ledges State Park south of Boone. Everywhere you look, the famous ledges are surrounded by gorgeous scenery. Pease Creek, a clear slow-moving stream, finds its way to the Des Moines River, carrying with it blankets of leaves and sparkling reflections of the rich valley.

Nothing beats a long hike through the trees on a crisp autumn day. With the leaves falling around you, take some pictures, but don't use up the entire roll of film just yet.

On the way home, end the day with a peaceful drive down by Big Creek and Saylorville. Make sure to stop by the Dam to take a picture of the sunset over the lake. This photograph will remind you of just how beautiful Iowa can be, especially on a pleasant October day.

*Jane Messenger is a student at Iowa State University majoring in agricultural journalism and fisheries and wildlife biology.*



# A CONSERVATION CHRISTMAS

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THE  
RING-NECKED PHOENIX  
IN IOWA



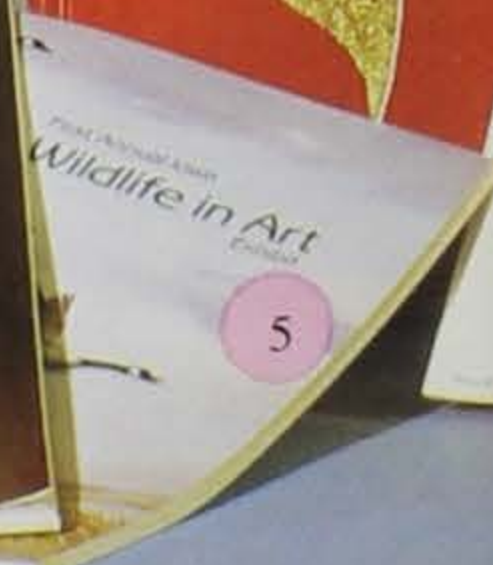
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To make your Christmas shopping easier this year, the Iowa Conservation Commission is offering the following items for the wildlife and outdoor enthusiasts. To order, fill out the order blank, enclose the appropriate remittance and mail to:

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**Wallace Building**

**Des Moines, Iowa 50319-0034**

Order early. Some quantities are limited.

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|---|----------|------|
| 1 "Wetland Heritage — Canada Geese" by Maynard Reece; 500 limited edition signed/numbered; image 13" x 19 1/2"; high quality rag paper printed by Mill Pond Press; \$150 (frame and matting not included)   |          |      |
| 2 1986 Stamps (1985 pictured)<br>Waterfowl (Duck) Stamp — \$5<br>Trout Stamp — \$8<br>Habitat Stamp — \$3<br>(also available at county recorders and sport shops)   |          |      |
| 3 "Spring Surprise" by Norman Neal Deaton; amaranth sculpture; 200 limited edition signed/numbered; about 6" high x 4" x 4"; \$210  |          |      |
| 4 1984 Iowa Wildlife in Art show catalog; 64 pages, highest quality reproduction of 44 of Iowa's finest wildlife artists; \$9   |          |      |
| 5 1985 Iowa Wildlife in Art show catalog; 64 pages, highest quality reproduction of 45 of Iowa's finest wildlife artists; \$9   |          |      |
| 6 The Ring-necked Pheasant in Iowa; Allen L. Farris, editor; 147 pages; color photos; hard bound; \$5   |          |      |
| 7 1985 Nongame Support Certificate — American kestrel photo by Lowell Washburn; image 5 1/4" x 7 1/4"; 5000 limited edition numbered; available until March 31, 1986; \$5<br>1986 Nongame Support Certificate — Barn Owl; not pictured; photographer to be announced; image \$5 |          |      |
| 8 Iowa's Natural Heritage, Tom C. Cooper, executive editor; 340 pages; highest quality printing; color photos; hard bound; \$29.95  |          |      |

9 Waterfowl in Iowa — Jack W. Musgrove, editor; 130 pages; color plates by Maynard Reece; hard bound; \$3

10 1986 Licenses

- Resident Fishing — \$8.50  
Resident Hunting — \$8.50  
Resident Combination — \$15.50  
Resident Fur Harvester under 16 — \$2.50  
Resident Fur Harvester 16 and older — \$15.50  
(available at county recorders and sport shops)

11 1986 State Park User Annual Permit — first year required in Iowa; \$10 (see page 10 for free permit qualifications)

12 TIP (Turn in Poachers) Support Sticker — make tax deductible donation of \$5 or more to be used to support the reward fund for persons providing information leading to arrests of poachers.

13 Iowa Conservationist — one-year subscription; \$5 (include address of subscription recipient on separate sheet)

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Iowa's  
Natural Heritage

8

WATERFOWL  
IN IOWA

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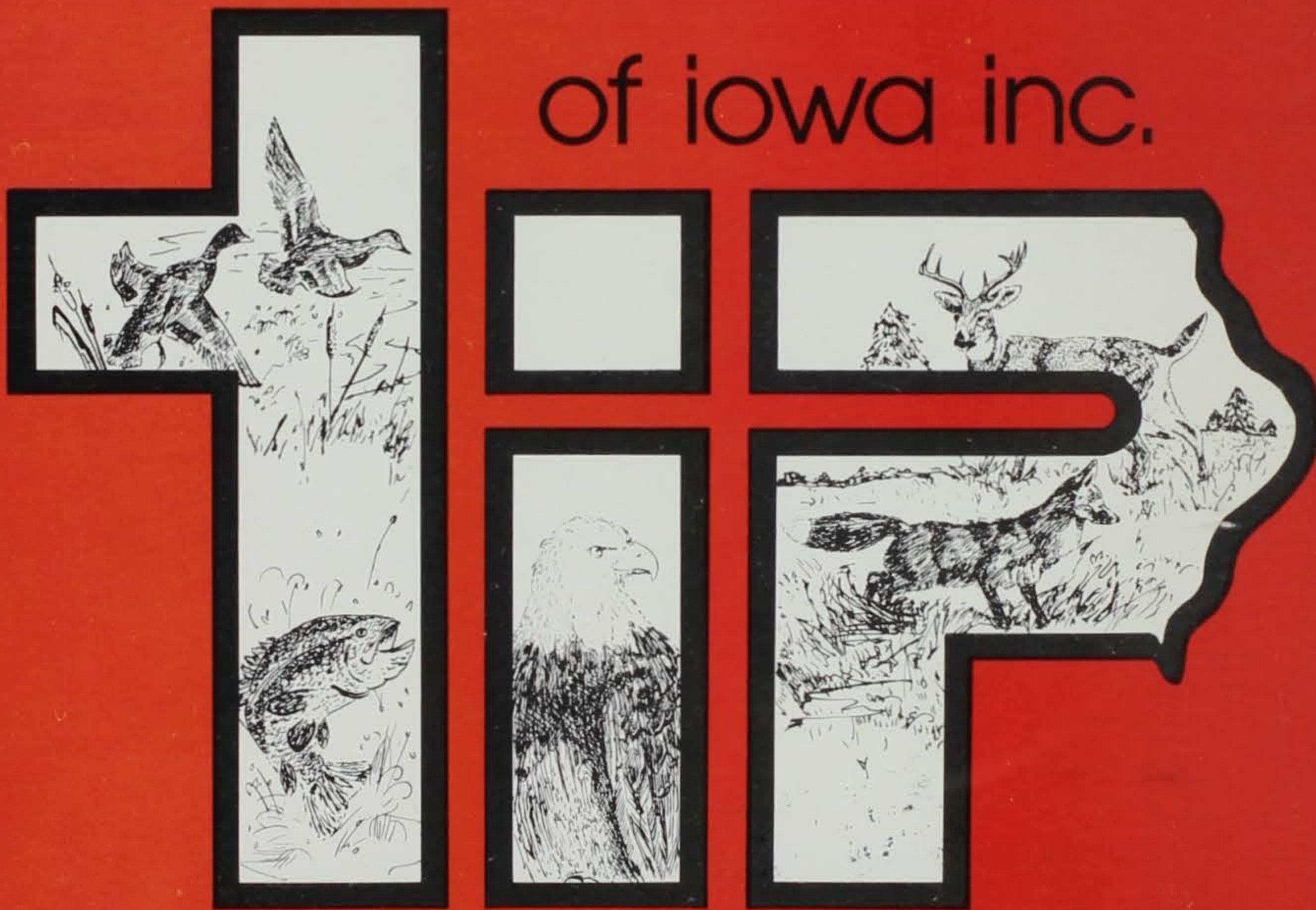


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